SEQUENCE LISTING

<110> Mello, Craig C.
      Tabara, Hiroaki
      Grishok, Alla
      Fire, Andrew

<120> RNA INTERFERENCE PATHWAY GENES AS TOOLS FOR TARGETED GENETIC
      INTERFERENCE

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Phe Tyr Arg His Ser Leu Asp Pro Glu Met Lys Trp Leu Ala Arg Pro
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act ggt aaa tgc gac ggc aaa ttc tat gag aag aaa gta ctt ctt ttg       149
Thr Gly Lys Cys Asp Gly Lys Phe Tyr Glu Lys Lys Val Leu Leu Leu
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gta aat tgg ttc aag ttc tcc agc aaa att tac gat cgg gaa tac tac       197
Val Asn Trp Phe Lys Phe Ser Ser Lys Ile Tyr Asp Arg Glu Tyr Tyr
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gag tat gaa gtg aaa atg aca aag gaa gta ttg aat aga aaa cca gga       245
Glu Tyr Glu Val Lys Met Thr Lys Glu Val Leu Asn Arg Lys Pro Gly
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aaa cct ttc cca aaa aag aca gaa att cca att ccc gat cgt gca aaa       293
Lys Pro Phe Pro Lys Lys Thr Glu Ile Pro Ile Pro Asp Arg Ala Lys
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ctc ttc tgg caa cat ctt cgg cat gag aag aag cag aca gat ttt att       341
Leu Phe Trp Gln His Leu Arg His Glu Lys Lys Gln Thr Asp Phe Ile
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Arg Leu Asn Thr Val Thr Ser Lys Met Leu Val Ser Glu Lys Val Val
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aaa aag gat tcg gag aaa aaa gat gaa aag gat ttg gag aaa aaa atc      485
Lys Lys Asp Ser Glu Lys Lys Asp Glu Lys Asp Leu Glu Lys Lys Ile
140             145             150             155

tta tac aca atg ata ctt acc tat cgt aaa aaa ttt cac ctg aac ttt      533
Leu Tyr Thr Met Ile Leu Thr Tyr Arg Lys Lys Phe His Leu Asn Phe
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agt cga gaa aat ccg gaa aaa gac gaa gaa gcg aat cgg agt tac aaa      581
Ser Arg Glu Asn Pro Glu Lys Asp Glu Glu Ala Asn Arg Ser Tyr Lys
            175             180             185

ttc ctg aag aat gtt atg acc cag aaa gtt cgc tac gcg cct ttt gtg      629
Phe Leu Lys Asn Val Met Thr Gln Lys Val Arg Tyr Ala Pro Phe Val
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aac gag gag att aaa gta caa ttc gcg aaa aat ttt gtg tac gat aat      677
Asn Glu Glu Ile Lys Val Gln Phe Ala Lys Asn Phe Val Tyr Asp Asn
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aat tca att ctg cga gtt cct gaa tcg ttt cac gat cca aac aga ttc      725
Asn Ser Ile Leu Arg Val Pro Glu Ser Phe His Asp Pro Asn Arg Phe
220             225             230             235

gaa caa tca tta gaa gta gca cca aga atc gaa gca tgg ttt gga att      773
Glu Gln Ser Leu Glu Val Ala Pro Arg Ile Glu Ala Trp Phe Gly Ile
            240             245             250

tac att gga atc aaa gaa ttg ttc gat ggt gaa cct gtg ctc aat ttt      821
Tyr Ile Gly Ile Lys Glu Leu Phe Asp Gly Glu Pro Val Leu Asn Phe
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gca att gtc gat aaa cta ttc tac aat gca ccg aaa atg tct ctt ctg      869
Ala Ile Val Asp Lys Leu Phe Tyr Asn Ala Pro Lys Met Ser Leu Leu
        270             275             280

gat tat ctt ctc cta att gtc gac ccc cag tcg tgt aac gat gat gta      917
Asp Tyr Leu Leu Leu Ile Val Asp Pro Gln Ser Cys Asn Asp Asp Val
285             290             295

cga aaa gat ctt aaa aca aaa ctg atg gcg gga aaa atg aca atc aga      965
Arg Lys Asp Leu Lys Thr Lys Leu Met Ala Gly Lys Met Thr Ile Arg
300             305             310             315

caa gcc gcg cgg cca aga att cga caa tta ttg gaa aat ttg aag ctg     1013
Gln Ala Ala Arg Pro Arg Ile Arg Gln Leu Leu Glu Asn Leu Lys Leu
            320             325             330

aaa tgc gca gaa gtt tgg gat aac gaa atg tcg aga ttg aca gaa cga     1061
Lys Cys Ala Glu Val Trp Asp Asn Glu Met Ser Arg Leu Thr Glu Arg
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cat ctg aca ttt cta gat ttg tgc gag gaa aac tct ctt gtt tat aaa     1109
His Leu Thr Phe Leu Asp Leu Cys Glu Glu Asn Ser Leu Val Tyr Lys
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Val Thr Gly Lys Ser Asp Arg Gly Arg Asn Ala Lys Lys Tyr Asp Thr
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380                     385                 390                 395

cac cta cca cta gtc aaa gtt aaa agt gga gca aaa gaa tac gct gta        1253
His Leu Pro Leu Val Lys Val Lys Ser Gly Ala Lys Glu Tyr Ala Val
                        400                 405                 410

cca atg gaa cat ctt gaa gtt cat gag aag cca caa aga tac aag aat        1301
Pro Met Glu His Leu Glu Val His Glu Lys Pro Gln Arg Tyr Lys Asn
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cga att gat ctg gtg atg caa gac aag ttt cta aag cga gct aca cga        1349
Arg Ile Asp Leu Val Met Gln Asp Lys Phe Leu Lys Arg Ala Thr Arg
            430                 435                 440

aaa cct cac gac tac aaa gaa aat acc cta aaa atg ctg aaa gaa ttg        1397
Lys Pro His Asp Tyr Lys Glu Asn Thr Leu Lys Met Leu Lys Glu Leu
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gat ttc tct tct gaa gag cta aat ttt gtt gaa aga ttt gga tta tgc        1445
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tcc aaa ctt cag atg atc gaa tgt cca gga aag gtt ttg aaa gag cca        1493
Ser Lys Leu Gln Met Ile Glu Cys Pro Gly Lys Val Leu Lys Glu Pro
                480                 485                 490

atg ctt gtg aat agt gta aat gaa caa att aaa atg aca cca gtg att        1541
Met Leu Val Asn Ser Val Asn Glu Gln Ile Lys Met Thr Pro Val Ile
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cgt gga ttt caa gaa aaa caa ttg aat gtg gtt ccc gaa aaa gaa ctt        1589
Arg Gly Phe Gln Glu Lys Gln Leu Asn Val Val Pro Glu Lys Glu Leu
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tgc tgt gct gtt ttt gta gtc aac gaa aca gcg gga aat cca tgc tta        1637
Cys Cys Ala Val Phe Val Val Asn Glu Thr Ala Gly Asn Pro Cys Leu
            525                 530                 535

gaa gag aac gac gtt gtt aag ttc tac acc gaa cta att ggt ggt tgc        1685
Glu Glu Asn Asp Val Val Lys Phe Tyr Thr Glu Leu Ile Gly Gly Cys
540                     545                 550                 555

aag ttc cgt gga ata cga att ggt gcc aat gaa aac aga gga gcg caa        1733
Lys Phe Arg Gly Ile Arg Ile Gly Ala Asn Glu Asn Arg Gly Ala Gln
                560                 565                 570

tct att atg tac gac gcg acg aaa aat gaa tat gcc ttc tac aaa aat        1781
Ser Ile Met Tyr Asp Ala Thr Lys Asn Glu Tyr Ala Phe Tyr Lys Asn
                575                 580                 585

tgt aca cta aat acc gga atc ggt aga ttt gaa ata gcc gca aca gaa        1829
Cys Thr Leu Asn Thr Gly Ile Gly Arg Phe Glu Ile Ala Ala Thr Glu
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gcg aag aat atg ttt gaa cgt ctt ccc gat aaa gaa caa aaa gtc tta        1877
Ala Lys Asn Met Phe Glu Arg Leu Pro Asp Lys Glu Gln Lys Val Leu
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atg ttc att atc att tcc aaa cga caa ctg aat gct tac ggt ttt gtg        1925
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Ser Glu Thr Val Thr Lys Ala Leu Ala Ser Leu Arg His Glu Lys Gly
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tca aaa cga att ttc tat caa att gca ttg aaa atc aac gcg aaa tta      2069
Ser Lys Arg Ile Phe Tyr Gln Ile Ala Leu Lys Ile Asn Ala Lys Leu
            670             675             680

gga ggt att aac cag gag ctt gac tgg tca gaa att gca gaa ata tca      2117
Gly Gly Ile Asn Gln Glu Leu Asp Trp Ser Glu Ile Ala Glu Ile Ser
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cca gaa gaa aaa gaa aga cgg aaa aca atg cca tta act atg tat gtt      2165
Pro Glu Glu Lys Glu Arg Arg Lys Thr Met Pro Leu Thr Met Tyr Val
700             705             710             715

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ata gcg gct gta gta gcg agt atc aat cca ggt gga act atc tat cga      2261
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aat atg att gtg act caa gaa gaa tgt cgt ccc ggt gag cgt gca gtg      2309
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Ala His Gly Arg Glu Arg Thr Asp Ile Leu Glu Ala Lys Phe Val Lys
        765             770             775

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780             785             790             795

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Ile Val Val Tyr Arg Asp Gly Val Ser Asp Ser Glu Met Leu Arg Val
                800             805             810

agt cat gat gag ctt cga tct tta aaa agc gaa gta aaa caa ttc atg      2501
Ser His Asp Glu Leu Arg Ser Leu Lys Ser Glu Val Lys Gln Phe Met
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tcg gaa cgg gat gga gaa gat cca gag ccg aag tac acg ttc att gtg      2549
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Ile Gln Lys Arg His Asn Thr Arg Leu Leu Arg Arg Met Glu Lys Asp
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aag cca gtg gtc aat aaa gat ctt act cct gct gaa aca gat gtc gct      2645
Lys Pro Val Val Asn Lys Asp Leu Thr Pro Ala Glu Thr Asp Val Ala
860             865             870             875

gtt gct gct gtt aaa caa tgg gag gag gat atg aaa gaa agc aaa gaa      2693
Val Ala Ala Val Lys Gln Trp Glu Glu Asp Met Lys Glu Ser Lys Glu
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Leu Gly Thr Ser Arg Pro Gly His Tyr Thr Val Met Tyr Asp Asp Lys
        925             930             935

gga atg agc caa gat gaa gtc tat aaa atg acc tac gga ctt gct ttt    2885
Gly Met Ser Gln Asp Glu Val Tyr Lys Met Thr Tyr Gly Leu Ala Phe
940             945             950             955

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Tyr Ala His Leu Ser Cys Glu Lys Ala Lys Glu Leu Tyr Arg Thr Tyr
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Lys Glu His Tyr Ile Gly Asp Tyr Ala Gln Pro Arg Thr Arg His Glu
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atg gaa cat ttt ctc caa act aac gtg aag tac cct gga atg tcg ttc    3077
Met Glu His Phe Leu Gln Thr Asn Val Lys Tyr Pro Gly Met Ser Phe
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gca taacattttg caaaagtgtc gcccgtttca atcaaatttt tcaattgtag          3130
Ala
1020


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Lys Thr Glu Ile Pro Ile Pro Asp Arg Ala Lys Leu Phe Trp Gln His
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Leu Arg His Glu Lys Lys Gln Thr Asp Phe Ile Leu Glu Asp Tyr Val
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Phe Asp Glu Lys Asp Thr Val Tyr Ser Val Cys Arg Leu Asn Thr Val
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Thr Ser Lys Met Leu Val Ser Glu Lys Val Val Lys Lys Asp Ser Glu
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Lys Lys Asp Glu Lys Asp Leu Glu Lys Lys Ile Leu Tyr Thr Met Ile
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Leu Thr Tyr Arg Lys Lys Phe His Leu Asn Phe Ser Arg Glu Asn Pro
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Val Gln Phe Ala Lys Asn Phe Val Tyr Asp Asn Asn Ser Ile Leu Arg
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Val Pro Glu Ser Phe His Asp Pro Asn Arg Phe Glu Gln Ser Leu Glu
225   230   235   240
Val Ala Pro Arg Ile Glu Ala Trp Phe Gly Ile Tyr Ile Gly Ile Lys
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Glu Leu Phe Asp Gly Glu Pro Val Leu Asn Phe Ala Ile Val Asp Lys
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Leu Phe Tyr Asn Ala Pro Lys Met Ser Leu Leu Asp Tyr Leu Leu Leu
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Thr Lys Leu Met Ala Gly Lys Met Thr Ile Arg Gln Ala Ala Arg Pro
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Asp Leu Cys Glu Glu Asn Ser Leu Val Tyr Lys Val Thr Gly Lys Ser
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Asp Arg Gly Arg Asn Ala Lys Lys Tyr Asp Thr Thr Leu Phe Lys Ile
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Tyr Glu Glu Asn Lys Lys Phe Ile Glu Phe Pro His Leu Pro Leu Val
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Lys Val Lys Ser Gly Ala Lys Glu Tyr Ala Val Pro Met Glu His Leu
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Glu Val His Glu Lys Pro Gln Arg Tyr Lys Asn Arg Ile Asp Leu Val
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Met Gln Asp Lys Phe Leu Lys Arg Ala Thr Arg Lys Pro His Asp Tyr
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Glu Leu Asn Phe Val Glu Arg Phe Gly Leu Cys Ser Lys Leu Gln Met
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Val Lys Phe Tyr Thr Glu Leu Ile Gly Gly Cys Lys Phe Arg Gly Ile
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Gly Ile Gly Arg Phe Glu Ile Ala Ala Thr Glu Ala Lys Asn Met Phe
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Glu Arg Leu Pro Asp Lys Glu Gln Lys Val Leu Met Phe Ile Ile Ile
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Ser Lys Arg Gln Leu Asn Ala Tyr Gly Phe Val Lys His Tyr Cys Asp
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His Thr Ile Gly Val Ala Asn Gln His Ile Thr Ser Glu Thr Val Thr
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            660   665   670
Tyr Gln Ile Ala Leu Lys Ile Asn Ala Lys Leu Gly Gly Ile Asn Gln
        675   680   685
Glu Leu Asp Trp Ser Glu Ile Ala Glu Ile Ser Pro Glu Glu Lys Glu
        690   695   700

Arg Arg Lys Thr Met Pro Leu Thr Met Tyr Val Gly Ile Asp Val Thr
705   710   715   720
His Pro Thr Ser Tyr Ser Gly Ile Asp Tyr Ser Ile Ala Ala Val Val
                725   730   735
Ala Ser Ile Asn Pro Gly Gly Thr Ile Tyr Arg Asn Met Ile Val Thr
                740   745   750
Gln Glu Glu Cys Arg Pro Gly Glu Arg Ala Val Ala His Gly Arg Glu
            755   760   765
Arg Thr Asp Ile Leu Glu Ala Lys Phe Val Lys Leu Leu Arg Glu Phe
        770   775   780
Ala Glu Asn Asn Asp Asn Arg Ala Pro Ala His Ile Val Val Tyr Arg
785   790   795   800
Asp Gly Val Ser Asp Ser Glu Met Leu Arg Val Ser His Asp Glu Leu
                805   810   815
Arg Ser Leu Lys Ser Glu Val Lys Gln Phe Met Ser Glu Arg Asp Gly
        820   825   830
Glu Asp Pro Glu Pro Lys Tyr Thr Phe Ile Val Ile Gln Lys Arg His
        835   840   845
Asn Thr Arg Leu Leu Arg Arg Met Glu Lys Asp Lys Pro Val Val Asn
    850   855   860
Lys Asp Leu Thr Pro Ala Glu Thr Asp Val Ala Val Ala Ala Val Lys
865   870   875   880
Gln Trp Glu Glu Asp Met Lys Glu Ser Lys Glu Thr Gly Ile Val Asn
            885   890   895
Pro Ser Ser Gly Thr Thr Val Asp Lys Leu Ile Val Ser Lys Tyr Lys
        900   905   910
Phe Asp Phe Phe Leu Ala Ser His His Gly Val Leu Gly Thr Ser Arg
        915   920   925
Pro Gly His Tyr Thr Val Met Tyr Asp Asp Lys Gly Met Ser Gln Asp
    930   935   940
Glu Val Tyr Lys Met Thr Tyr Gly Leu Ala Phe Leu Ser Ala Arg Cys
945   950   955   960
Arg Lys Pro Ile Ser Leu Pro Val Pro Val His Tyr Ala His Leu Ser
            965   970   975
Cys Glu Lys Ala Lys Glu Leu Tyr Arg Thr Tyr Lys Glu His Tyr Ile
            980   985   990
Gly Asp Tyr Ala Gln Pro Arg Thr Arg His Glu Met Glu His Phe Leu
        995   1000   1005
Gln Thr Asn Val Lys Tyr Pro Gly Met Ser Phe Ala
    1010   1015   1020

<210> 4
<211> 1222
<212> DNA
<213> Caenorhabditis elegans

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ccttcccgat cggaggataa caaaacgcca agaaacagaa cagatttgga gatgtttctg   120
aagaaaactc ccctcatggt actagaagag gctgctaagg ctgtctatca aagacgcca   180
acttggggca ctgtcgaact tcctgaaggc ttcgagatga cgttgattct gaatgaaatt   240
actgtaaaag gccaggcaac aagcaagaaa gctgcgagac aaaaggctgc tgttgaatat   300
ttacgcaagg ttgtggagaa aggaaagcac gaaatctttt cattcctgg aacaaccaaa   360
gaagaagctc tttcgaatat tgatcaaata tcggataagg ctgaggaatt gaaacgatca   420
acttcagatg ctgttcagga taacgataac gatgattcga ttcctacaag tgctgaattt   480
ccacctggta tttcgccaac cgagaattgg gtcggaaagt gcaggaaaa atctcaaaaa   540
agcaagctgc aagcccccaat ctatgaagat ccaagaatg agagaaccga gcgtttcttg   600
gttatatgca cgatgtgcaa tcaaaaaacc agaggaatca gaagtaagaa gaaggacgca   660
aagaatcttg cagcatggtt gatgtggaaa gcgttggaag acggtatcga atctctggaa   720
tcatatgata tggttgatgt gattgaaaat ttggaagaag ctgaacattt actcgaaatt   780
caggatcaag catccaagat taaagacaag cattccgcac tgattgatat actctcggac   840
aagaaaagat tttcagacta cagcatggat ttcaacgtat atcagtgag cacaatggga   900
atacatcagg tgctattgga aatctcgttc cggcgtctag tttctccaga ccccgacgat   960
ttggaaatgg gagcagaaca cacccgaact gaagaaatta tgaaggctac tgccgagaag 1020
gaaaagctac ggaagaagaa tatgccagat tccgggccgc tagtgtttgc tggacatggt 1080
tcatcggcgg aagaggctaa acagtgtgct tgtaaatcgg cgattatcca tttcaacacc 1140

tatgatttca cggattgaaa atattattgc gtattcctga aaaatgaagc gtctgaatga   1200
ttataaaaaa aaaaaaaaaa aa   1222

<210> 5
<211> 385
<212> PRT
<213> Caenorhabditis elegans

<400> 5
Met Asp Leu Thr Lys Leu Thr Phe Glu Ser Val Phe Gly Gly Ser Asp
 1   5   10   15
Val Pro Met Lys Pro Ser Arg Ser Glu Asp Asn Lys Thr Pro Arg Asn
                20   25   30
Arg Thr Asp Leu Glu Met Phe Leu Lys Lys Thr Pro Leu Met Val Leu
            35   40   45
Glu Glu Ala Ala Lys Ala Val Tyr Gln Lys Thr Pro Thr Trp Gly Thr
        50   55   60
Val Glu Leu Pro Glu Gly Phe Glu Met Thr Leu Ile Leu Asn Glu Ile
 65   70   75   80
Thr Val Lys Gly Gln Ala Thr Ser Lys Lys Ala Ala Arg Gln Lys Ala
                85   90   95
Ala Val Glu Tyr Leu Arg Lys Val Val Glu Lys Gly Lys His Glu Ile
            100   105   110
Phe Phe Ile Pro Gly Thr Thr Lys Glu Glu Ala Leu Ser Asn Ile Asp
        115   120   125
Gln Ile Ser Asp Lys Ala Glu Glu Leu Lys Arg Ser Thr Ser Asp Ala
    130   135   140
Val Gln Asp Asn Asp Asn Asp Asp Ser Ile Pro Thr Ser Ala Glu Phe
145   150   155   160
Pro Pro Gly Ile Ser Pro Thr Glu Asn Trp Val Gly Lys Leu Gln Glu
                165   170   175
Lys Ser Gln Lys Ser Lys Leu Gln Ala Pro Ile Tyr Glu Asp Ser Lys
            180   185   190
Asn Glu Arg Thr Glu Arg Phe Leu Val Ile Cys Thr Met Cys Asn Gln
        195   200   205
Lys Thr Arg Gly Ile Arg Ser Lys Lys Lys Asp Ala Lys Asn Leu Ala
    210   215   .   220
Ala Trp Leu Met Trp Lys Ala Leu Glu Asp Gly Ile Glu Ser Leu Glu
225   230   235   240
Ser Tyr Asp Met Val Asp Val Ile Glu Asn Leu Glu Glu Ala Glu His
                245   250   255
Leu Leu Glu Ile Gln Asp Gln Ala Ser Lys Ile Lys Asp Lys His Ser
            260   265   270
Ala Leu Ile Asp Ile Leu Ser Asp Lys Lys Arg Phe Ser Asp Tyr Ser
            275   280   285
Met Asp Phe Asn Val Leu Ser Val Ser Thr Met Gly Ile His Gln Val
    290   295   300
Leu Leu Glu Ile Ser Phe Arg Arg Leu Val Ser Pro Asp Pro Asp Asp
305   310   315   320
Leu Glu Met Gly Ala Glu His Thr Gln Thr Glu Glu Ile Met Lys Ala
                325   330   335
Thr Ala Glu Lys Glu Lys Leu Arg Lys Lys Asn Met Pro Asp Ser Gly
            340   345   350
Pro Leu Val Phe Ala Gly His Gly Ser Ser Ala Glu Glu Ala Lys Gln
            355   360   365
Cys Ala Cys Lys Ser Ala Ile Ile His Phe Asn Thr Tyr Asp Phe Thr
    370   375   380
Asp

<210> 6
<211> 763
<212> PRT
<213> Arabidopsis thaliana

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<400> 6
Gly Ile Ile Asn Gly Pro Lys Arg Glu Arg Ser Tyr Lys Val Ala Ile
1               5                   10                  15
Lys Phe Val Ala Arg Ala Asn Met His His Leu Gly Glu Phe Leu Ala
            20                  25                  30
Gly Lys Arg Ala Asp Cys Pro Gln Glu Ala Val Gln Ile Leu Asp Ile
        35                  40                  45
Val Leu Arg Glu Leu Ser Val Lys Arg Phe Cys Pro Val Gly Arg Ser
    50                  55                  60
Phe Phe Ser Pro Asp Ile Lys Thr Pro Gln Arg Leu Gly Glu Gly Leu
65                  70                  75                  80
Glu Ser Trp Cys Gly Phe Tyr Gln Ser Ile Arg Pro Thr Gln Met Gly
                85                  90                  95
Leu Ser Leu Asn Ile Asp Met Ala Ser Ala Ala Phe Ile Glu Pro Leu
            100                 105                 110
Pro Val Ile Glu Phe Val Ala Gln Leu Leu Gly Lys Asp Val Leu Ser
        115                 120                 125
Lys Pro Leu Ser Asp Ser Asp Arg Val Lys Ile Lys Lys Gly Leu Arg
    130                 135                 140
Gly Val Lys Val Glu Val Thr His Arg Ala Asn Val Arg Arg Lys Tyr
145                 150                 155                 160
Arg Val Ala Gly Leu Thr Thr Gln Pro Thr Arg Glu Leu Met Phe Pro
                165                 170                 175
Val Asp Glu Asn Cys Thr Met Lys Ser Val Ile Glu Tyr Phe Gln Glu
            180                 185                 190
Met Tyr Gly Phe Thr Ile Gln His Thr His Leu Pro Cys Leu Gln Val
        195                 200                 205
Gly Asn Gln Lys Lys Ala Ser Tyr Leu Pro Met Glu Ala Cys Lys Ile
    210                 215                 220
Val Glu Gly Gln Arg Tyr Thr Lys Arg Leu Asn Glu Lys Gln Ile Thr
225                 230                 235                 240
Ala Leu Leu Lys Val Thr Cys Gln Arg Ala Glu Gly Gln Arg Asn Asp
                245                 250                 255
Ile Leu Arg Thr Val Gln His Asn Ala Tyr Asp Gln Asp Pro Tyr Ala
            260                 265                 270
Lys Glu Phe Gly Met Asn Ile Ser Glu Lys Leu Ala Ser Val Glu Ala
        275                 280                 285
Arg Ile Leu Pro Ala Pro Trp Leu Lys Tyr His Glu Asn Gly Lys Glu
    290                 295                 300
Lys Asp Cys Leu Pro Gln Val Gly Gln Trp Asn Met Met Asn Lys Lys
305                 310                 315                 320
Met Ile Asn Gly Met Thr Val Ser Arg Trp Ala Cys Val Asn Phe Ser
                325                 330                 335
Arg Ser Val Gln Glu Asn Val Ala Arg Gly Phe Cys Asn Glu Leu Gly
            340                 345                 350
Gln Met Cys Glu Val Ser Gly Met Glu Phe Asn Pro Glu Pro Val Ile
        355                 360                 365
Pro Ile Tyr Ser Ala Arg Pro Asp Gln Val Glu Lys Ala Leu Lys His
    370                 375                 380
Val Tyr His Thr Ser Met Asn Lys Thr Lys Gly Lys Glu Leu Glu Leu
385                 390                 395                 400
Leu Leu Ala Ile Leu Pro Asp Asn Asn Gly Ser Leu Tyr Gly Asp Leu
                405                 410                 415
Lys Arg Ile Cys Glu Thr Glu Leu Gly Leu Ile Ser Gln Cys Cys Leu
        420                 425                 430
Thr Lys His Val Phe Lys Ile Ser Lys Gln Tyr Leu Ala Asp Val Ser
        435                 440                 445
Leu Lys Ile Asn Val Lys Met Gly Gly Arg Asn Thr Val Leu Val Asp
    450                 455                 460
Ala Ile Ser Cys Arg Ile Pro Leu Val Ser Asp Ile Pro Thr Ile Ile
465                 470                 475                 480
Phe Gly Ala Asp Val Thr His Pro Glu Asn Gly Glu Glu Ser Ser Pro
                485                 490                 495
Ser Ile Ala Ala Val Val Ala Ser Gln Asp Trp Pro Glu Val Thr Lys
        500                 505                 510
Tyr Ala Gly Leu Val Cys Ala Gln Ala His Arg Gln Glu Leu Ile Gln
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                515                        520                        525
Asp Leu Tyr Lys Thr Trp Gln Asp Pro Val Arg Gly Thr Val Ser Gly
    530                        535                        540
Gly Met Ile Arg Asp Leu Leu Ile Ser Phe Arg Lys Ala Thr Gly Gln
545                        550                        555                        560
Lys Pro Leu Arg Ile Ile Phe Tyr Arg Asp Gly Val Ser Glu Gly Gln
                565                        570                        575
Phe Tyr Gln Val Leu Leu Tyr Glu Leu Asp Ala Ile Arg Lys Ala Cys
                580                        585                        590
Ala Ser Leu Glu Pro Asn Tyr Gln Pro Pro Val Thr Phe Ile Val Val
                595                        600                        605
Gln Lys Arg His His Thr Arg Leu Phe Ala Asn Asn His Arg Asp Lys
    610                        615                        620
Asn Ser Thr Asp Arg Ser Gly Asn Ile Leu Pro Gly Thr Val Val Asp
625                        630                        635                        640
Thr Lys Ile Cys His Pro Thr Glu Phe Asp Phe Tyr Leu Cys Ser His
                645                        650                        655
Ala Gly Ile Gln Gly Thr Ser Arg Pro Ala His Tyr His Val Leu Trp
                660                        665                        670
Asp Glu Asn Asn Phe Thr Ala Asp Gly Ile Gln Ser Leu Thr Asn Asn
                675                        680                        685
Leu Cys Tyr Thr Tyr Ala Arg Cys Thr Arg Ser Val Ser Ile Val Pro
    690                        695                        700
Pro Ala Tyr Tyr Ala His Leu Ala Ala Phe Arg Ala Arg Phe Tyr Leu
705                        710                        715                        720
Glu Pro Glu Ile Met Gln Asp Asn Gly Ser Pro Gly Lys Lys Asn Thr
                725                        730                        735
Lys Thr Thr Thr Val Gly Asp Val Gly Val Lys Pro Leu Pro Ala Leu
                740                        745                        750
Lys Glu Asn Val Lys Arg Val Met Phe Tyr Cys
                755                        760
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<210> 7
<211> 678
<212> PRT
<213> Drosophila melanogaster

<400> 7
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Arg Ala Gly Glu Asn Ile Glu Ile Lys Ile Lys Ala Val Gly Ser Val
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Gln Ser Thr Asp Ala Glu Gln Phe Gln Val Leu Asn Leu Ile Leu Arg
              20                  25                      30
Arg Ala Met Glu Gly Leu Asp Leu Lys Leu Val Ser Arg Tyr Tyr Tyr
          35                  40                  45
Asp Pro Gln Ala Lys Ile Asn Leu Glu Asn Phe Arg Met Gln Leu Trp
      50                  55                  60
Pro Gly Tyr Gln Thr Ser Ile Arg Gln His Glu Asn Asp Ile Leu Leu
65                  70                  75                      80
Cys Ser Glu Ile Cys His Lys Val Met Arg Thr Glu Thr Leu Tyr Asn
              85                  90                      95
Ile Leu Ser Asp Ala Ile Arg Asp Ser Asp Tyr Gln Ser Thr Phe
          100                 105                 110
Lys Arg Ala Val Met Gly Met Val Ile Leu Thr Asp Tyr Asn Asn Lys
      115                 120                 125
Thr Tyr Arg Ile Asp Asp Val Asp Phe Gln Ser Thr Pro Leu Cys Lys
    130                 135                 140
Phe Lys Thr Asn Asp Gly Glu Ile Ser Tyr Val Asp Tyr Tyr Lys Lys
145                 150                 155                     160
Arg Tyr Asn Ile Ile Ile Arg Asp Leu Lys Gln Pro Leu Val Met Ser
              165                 170                     175
Arg Pro Thr Asp Lys Asn Ile Arg Gly Gly Asn Asp Gln Ala Ile Met
          180                 185                 190
Ile Ile Pro Glu Leu Ala Arg Ala Thr Gly Met Thr Asp Ala Met Arg
      195                 200                 205
Ala Asp Phe Arg Thr Leu Arg Ala Met Ser Glu His Thr Arg Leu Asn
    210                 215                 220
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Pro Asp Arg Arg Ile Glu Arg Leu Arg Met Phe Asn Lys Arg Leu Lys
225   230   235   240
Ser Cys Lys Gln Ser Val Glu Thr Leu Lys Ser Trp Asn Ile Glu Leu
                245   250   255
Asp Ser Ala Leu Val Glu Ile Pro Ala Arg Val Leu Pro Pro Glu Lys
            260   265   270
Ile Leu Phe Gly Asn Gln Lys Ile Phe Val Cys Asp Ala Arg Ala Asp
        275   280   285
Trp Thr Asn Glu Phe Arg Thr Cys Ser Met Phe Lys Asn Val His Ile
    290   295   300
Asn Arg Trp Tyr Val Ile Thr Pro Ser Arg Asn Leu Arg Glu Thr Gln
305   310   315   320
Glu Phe Val Gln Met Cys Ile Arg Thr Ala Ser Ser Met Lys Met Asn
                325   330   335
Ile Cys Asn Pro Ile Tyr Glu Glu Ile Pro Asp Asp Arg Asn Gly Thr
            340   345   350
Tyr Ser Gln Ala Ile Asp Asn Ala Ala Ala Asn Asp Pro Gln Ile Val
        355   360   365
Met Val Val Met Arg Ser Pro Asn Glu Glu Lys Tyr Ser Cys Ile Lys
    370   375   380
Lys Arg Thr Cys Val Asp Arg Pro Val Pro Ser Gln Val Val Thr Leu
385   390   395   400
Lys Val Ile Ala Pro Arg Gln Gln Lys Pro Thr Gly Leu Met Ser Ile
            405   410   415
Ala Thr Lys Val Val Ile Gln Met Asn Ala Lys Leu Met Gly Ala Pro
            420   425   430
Trp Gln Val Val Ile Pro Leu His Gly Leu Met Thr Val Gly Phe Asp
    435   440   445
Val Cys His Ser Pro Lys Asn Lys Asn Lys Ser Tyr Gly Ala Phe Val
    450   455   460
Ala Thr Met Asp Gln Lys Glu Ser Phe Arg Tyr Phe Ser Thr Val Asn
465   470   475   480
Glu His Ile Lys Gly Gln Glu Leu Ser Glu Gln Met Ser Val Asn Met
            485   490   495
Ala Cys Ala Leu Arg Ser Tyr Gln Glu Gln His Arg Ser Leu Pro Glu
        500   505   510
Arg Ile Leu Phe Phe Arg Asp Gly Val Gly Asp Gly Gln Leu Tyr Gln
        515   520   525
Val Val Asn Ser Glu Val Asn Thr Leu Lys Asp Arg Leu Asp Glu Ile
    530   535   540
Tyr Lys Ser Ala Gly Lys Gln Glu Gly Cys Arg Met Thr Phe Ile Ile
545   550   555   560
Val Ser Lys Arg Ile Asn Ser Arg Tyr Phe Thr Gly His Arg Asn Pro
            565   570   575
Val Pro Gly Thr Val Val Asp Asp Val Ile Thr Leu Pro Glu Arg Tyr
        580   585   590
Asp Phe Phe Leu Val Ser Gln Ala Val Arg Ile Gly Thr Val Ser Pro
        595   600   605
Thr Ser Tyr Asn Val Ile Ser Asp Asn Met Gly Leu Asn Ala Asp Lys
    610   615   620
Leu Gln Met Leu Ser Tyr Lys Met Thr His Met Tyr Tyr Asn Tyr Ser
625   630   635   640
Gly Thr Ile Arg Val Pro Ala Val Cys His Tyr Ala His Lys Leu Ala
            645   650   655
Phe Leu Val Ala Glu Ser Ile Asn Arg Ala Pro Ser Ala Gly Leu Gln
        660   665   670
Asn Gln Leu Tyr Phe Leu
        675

<210> 8
<211> 69
<212> PRT
<213> Artificial Sequence

<220>
<223> Consensus sequence

<221> VARIANT
<222> (1)...(69)
<223> Xaa = Any Amino Acid

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  1   5   10   15
Xaa Xaa Xaa Tyr Xaa Xaa Xaa Xaa Xaa Xaa Gly Pro Xaa His Xaa Xaa
             20   25   30
Xaa Phe Xaa Xaa Xaa Val Xaa Xaa Xaa Gly Xaa Xaa Xaa Xaa Xaa Gly
         35   40   45
Xaa Gly Xaa Ser Lys Lys Xaa Xaa Ala Lys Xaa Xaa Ala Ala Xaa Xaa
     50   55   60
Ala Leu Xaa Xaa Leu
 65

<210> 9
<211> 766
<212> PRT
<213> Caenorhabditis elegans

<400> 9
Ser Ala Val Glu Arg Gln Phe Ser Val Ser Leu Lys Trp Val Gly Gln
  1   5   10   15
Val Ser Leu Ser Thr Leu Glu Asp Ala Met Glu Gly Arg Val Arg Gln
             20   25   30
Val Pro Phe Glu Ala Val Gln Ala Met Asp Val Ile Leu Arg His Leu
         35   40   45
Pro Ser Leu Lys Tyr Thr Pro Val Gly Arg Ser Phe Phe Ser Pro Pro
     50   55   60
Val Pro Asn Ala Ser Gly Val Met Ala Gly Ser Cys Pro Pro Gln Ala
 65   70   75   80
Ser Gly Ala Val Ala Gly Gly Ala His Ser Ala Gly Gln Tyr His Ala
                 85   90   95
Glu Ser Lys Leu Gly Gly Gly Arg Glu Val Trp Phe Gly Phe His Gln
            100   105   110
Ser Val Arg Pro Ser Gln Trp Lys Met Met Leu Asn Ile Asp Val Ser
            115   120   125
Ala Thr Ala Phe Tyr Arg Ser Met Pro Val Ile Glu Phe Ile Ala Glu
        130   135   140
Val Leu Glu Leu Pro Val Gln Ala Leu Ala Glu Arg Arg Ala Leu Ser
145   150   155   160
Asp Ala Gln Arg Val Lys Phe Thr Lys Glu Ile Arg Gly Leu Lys Ile
                165   170   175
Glu Ile Thr His Cys Gly Gln Met Arg Arg Lys Tyr Arg Val Cys Asn
            180   185   190
Val Thr Arg Arg Pro Ala Gln Thr Gln Thr Phe Pro Leu Gln Leu Glu
            195   200   205
Thr Gly Gln Thr Ile Glu Cys Thr Val Ala Lys Tyr Phe Tyr Asp Lys
        210   215   220
Tyr Arg Ile Gln Leu Lys Tyr Pro His Leu Pro Cys Leu Gln Val Gly
225   230   235   240
Gln Glu Gln Lys His Thr Tyr Leu Pro Pro Glu Val Cys Asn Ile Val
                245   250   255
Pro Gly Gln Arg Cys Ile Lys Lys Leu Thr Asp Val Gln Thr Ser Thr
            260   265   270
Met Ile Lys Ala Thr Ala Arg Ser Ala Pro Glu Arg Glu Arg Glu Ile
        275   280   285
Ser Asn Leu Val Arg Lys Ala Glu Phe Ser Ala Asp Pro Phe Ala His
        290   295   300
Glu Phe Gly Ile Thr Ile Asn Pro Ala Met Thr Glu Val Lys Gly Arg
305   310   315   320
Val Leu Ser Ala Pro Lys Leu Leu Tyr Gly Gly Arg Thr Arg Ala Thr
            325   330   335
Ala Leu Pro Asn Gln Gly Val Trp Asp Met Arg Gly Lys Gln Phe His

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                  340                         345                       350
Thr Gly Ile Asp Val Arg Val Trp Ala Ile Ala Cys Phe Ala Gln Gln
              355                       360                     365
Gln His Val Lys Glu Asn Asp Leu Arg Met Phe Thr Asn Gln Leu Gln
          370                   375               380
Arg Ile Ser Asn Asp Ala Gly Met Pro Ile Val Gly Asn Pro Cys Phe
385                       390               395                     400
Cys Lys Tyr Ala Val Gly Val Glu Gln Val Glu Pro Met Phe Lys Tyr
                  405                   410                     415
Leu Lys Gln Asn Tyr Ser Gly Ile Gln Leu Val Val Val Val Leu Pro
              420                   425                     430
Gly Lys Thr Pro Val Tyr Ala Glu Val Lys Arg Val Gly Asp Thr Val
          435                   440                     445
Leu Gly Ile Ala Thr Gln Cys Val Gln Ala Lys Asn Ala Ile Arg Thr
      450                   455                     460
Thr Pro Gln Thr Leu Ser Asn Leu Cys Leu Lys Met Asn Val Lys Leu
465                   470                     475                     480
Gly Gly Val Asn Ser Ile Leu Leu Pro Asn Val Arg Pro Arg Ile Phe
                  485                   490                     495
Asn Glu Pro Val Ile Phe Phe Gly Cys Asp Ile Thr His Pro Pro Ala
              500                   505                     510
Gly Asp Ser Arg Lys Pro Ser Ile Ala Ala Val Val Gly Ser Met Asp
              515                   520                     525
Ala His Pro Ser Arg Tyr Ala Ala Thr Val Arg Val Gln Gln His Arg
          530                   535                     540
Gln Glu Ile Ile Ser Asp Leu Thr Tyr Met Val Arg Glu Leu Leu Val
545                   550                     555                     560
Gln Phe Tyr Arg Asn Thr Arg Phe Lys Pro Ala Arg Ile Val Val Tyr
                  565                   570                     575
Arg Asp Gly Val Ser Glu Gly Gln Phe Phe Asn Val Leu Gln Tyr Glu
              580                   585                     590
Leu Arg Ala Ile Arg Glu Ala Cys Met Met Leu Glu Arg Gly Tyr Gln
          595                   600                   - 605
Pro Gly Ile Thr Phe Ile Ala Val Gln Lys Arg His His Thr Arg Leu
      610                   615                     620
Phe Ala Val Asp Lys Lys Asp Gln Val Gly Lys Ala Tyr Asn Ile Pro
625                   630                     635                     640
Pro Gly Thr Thr Val Asp Val Gly Ile Thr His Pro Thr Glu Phe Asp
                  645                   650                     655
Phe Tyr Leu Cys Ser His Ala Gly Ile Gln Gly Thr Ser Arg Pro Ser
              660                   665                     670
His Tyr His Val Leu Trp Asp Asp Asn Asn Leu Thr Ala Asp Glu Leu
          675                   680                     685
Gln Gln Leu Thr Tyr Gln Met Cys His Thr Tyr Val Arg Cys Thr Arg
      690                   695                     700
Ser Val Ser Ile Pro Ala Pro Ala Tyr Tyr Ala His Leu Val Ala Phe
705                   710                     715                     720
Arg Ala Arg Tyr His Leu Val Asp Arg Glu His Asp Ser Gly Glu Gly
              725                   730                     735
Ser Gln Pro Ser Gly Thr Ser Glu Asp Thr Thr Leu Ser Asn Met Ala
          740                   745                     750
Arg Ala Val Gln Val Ile Leu Ala Phe Asn Leu Val Ser Ile
      755                   760                     765

<210> 10
<211> 737
<212> PRT
<213> Oryctolagus cuniculus

<400> 10
Gly Lys Asp Arg Ile Phe Lys Val Ser Ile Lys Trp Val Ser Cys Val
  1               5                   10                    15
Ser Leu Gln Ala Leu His Asp Ala Leu Ser Gly Arg Leu Pro Ser Val
              20                  25                  30
Pro Phe Glu Thr Ile Gln Ala Leu Asp Val Val Met Arg His Leu Pro
          35                  40                      45
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Ser Met Arg Tyr Thr Pro Val Gly Arg Ser Phe Phe Thr Ala Ser Glu
    50                  55                  60
Gly Cys Ser Asn Pro Leu Gly Gly Gly Arg Glu Val Trp Phe Gly Phe
65                  70                  75                  80
His Gln Ser Val Arg Pro Ser Leu Trp Lys Met Met Leu Asn Ile Asp
                85                  90                  95
Val Ser Ala Thr Ala Phe Tyr Lys Ala Gln Pro Val Ile Glu Phe Val
            100                 105                 110
Cys Glu Val Leu Asp Phe Lys Ser Ile Glu Glu Gln Gln Lys Pro Leu
        115                 120                 125
Thr Asp Ser Gln Arg Val Lys Phe Thr Lys Glu Ile Lys Gly Leu Lys
    130                 135                 140
Val Glu Ile Thr His Cys Gly Gln Met Lys Arg Lys Tyr Arg Val Cys
145                 150                 155                 160
Asn Val Thr Arg Arg Pro Ala Ser His Gln Thr Phe Pro Leu Gln Gln
                165                 170                 175
Glu Ser Gly Gln Thr Val Glu Cys Thr Val Ala Gln Tyr Phe Lys Asp
            180                 185                 190
Arg His Lys Leu Val Leu Arg Tyr Pro His Leu Pro Cys Leu Gln Val
        195                 200                 205
Gly Gln Glu Gln Lys His Thr Tyr Leu Pro Leu Glu Val Cys Asn Ile
    210                 215                 220
Val Ala Gly Gln Arg Cys Ile Lys Lys Leu Thr Asp Asn Gln Thr Ser
225                 230                 235                 240
Thr Met Ile Arg Ala Thr Ala Arg Ser Ala Pro Asp Arg Gln Glu Glu
            245                 250                 255
Ile Ser Lys Leu Met Arg Ser Ala Ser Phe Asn Thr Asp Pro Tyr Val
        260                 265                 270
Arg Glu Phe Gly Ile Met Val Lys Asp Glu Met Thr Asp Val Thr Gly
        275                 280                 285
Arg Val Leu Gln Pro Pro Ser Ile Leu Tyr Gly Gly Arg Asn Lys Ala
    290                 295                 300
Ile Ala Thr Pro Val Gln Gly Val Trp Asp Met Arg Asn Lys Gln Phe
305                 310                 315                 320
His Thr Gly Ile Glu Ile Lys Val Trp Ala Ile Ala Cys Phe Ala Pro
                325                 330                 335
Gln Arg Gln Cys Thr Glu Val His Leu Lys Ser Phe Thr Glu Gln Leu
            340                 345                 350
Arg Lys Ile Ser Arg Asp Ala Gly Met Pro Ile Gln Gly Gln Pro Cys
        355                 360                 365
Phe Cys Lys Tyr Ala Gln Gly Ala Asp Ser Val Gly Pro Met Phe Arg
    370                 375                 380
His Leu Lys Asn Thr Tyr Ala Gly Leu Gln Leu Val Val Val Ile Leu
385                 390                 395                 400
Pro Gly Lys Thr Pro Val Tyr Ala Glu Val Lys Arg Val Gly Asp Thr
                405                 410                 415
Val Leu Gly Met Ala Thr Gln Cys Val Gln Met Lys Asn Val Gln Arg
            420                 425                 430
Thr Thr Pro Gln Thr Leu Ser Asn Leu Cys Leu Lys Ile Asn Val Lys
        435                 440                 445
Leu Gly Gly Val Asn Asn Ile Leu Leu Pro Gln Gly Arg Pro Pro Val
    450                 455                 460
Phe Gln Gln Pro Val Ile Phe Leu Gly Ala Asp Val Thr His Pro Pro
465                 470                 475                 480
Ala Gly Asp Gly Lys Lys Pro Ser Ile Ala Ala Val Val Gly Ser Met
                485                 490                 495
Asp Ala His Pro Asn Arg Tyr Cys Ala Thr Val Arg Val Gln Gln His
            500                 505                 510
Arg Gln Glu Ile Ile Gln Asp Leu Ala Ala Met Val Arg Glu Leu Leu
        515                 520                 525
Ile Gln Phe Tyr Lys Ser Thr Arg Phe Lys Pro Thr Arg Ile Ile Phe
    530                 535                 540
Tyr Arg Asp Gly Val Ser Glu Gly Gln Phe Gln Gln Val Leu His His
545                 550                 555                 560
Glu Leu Leu Ala Ile Arg Glu Ala Cys Ile Lys Leu Glu Lys Asp Tyr
                565                 570                 575
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Gln Pro Gly Ile Thr Phe Ile Val Val Gln Lys Arg His His Thr Arg
        580             585                 590
Leu Phe Cys Thr Asp Lys Asn Glu Arg Val Gly Lys Ser Gly Asn Ile
        595             600                 605
Pro Ala Gly Thr Thr Val Asp Thr Lys Ile Thr His Pro Thr Glu Phe
        610             615                 620
Asp Phe Tyr Leu Cys Ser His Ala Gly Ile Gln Gly Thr Ser Arg Pro
625             630                 635                 640
Ser His Tyr His Val Leu Trp Asp Asp Asn Arg Phe Ser Ser Asp Glu
                645             650                 655
Leu Gln Ile Leu Thr Tyr Gln Leu Cys His Thr Tyr Val Arg Cys Thr
                660             665                 670
Arg Ser Val Ser Ile Pro Ala Pro Ala Tyr Tyr Ala His Leu Val Ala
        675             680                 685
Phe Arg Ala Arg Tyr His Leu Val Asp Lys Glu His Asp Ser Ala Glu
        690             695                 700
Gly Ser His Thr Ser Gly Gln Ser Asn Gly Arg Asp His Gln Ala Leu
705             710                 715                 720
Ala Lys Ala Val Gln Val His Gln Asp Thr Leu Arg Thr Met Tyr Phe
                725             730                 735
Ala
```

```
<210> 11
<211> 66
<212> PRT
<213> Xenopus laevis

<400> 11
Pro Val Gly Ser Leu Gln Glu Leu Ala Val Gln Lys Gly Trp Arg Leu
  1             5                 10                  15
Pro Glu Tyr Thr Val Ala Gln Glu Ser Gly Pro Pro His Lys Arg Glu
                20                  25                  30
Phe Thr Ile Thr Cys Arg Val Glu Thr Phe Val Glu Thr Gly Ser Gly
        35                  40                  45
Thr Ser Lys Gln Val Ala Lys Arg Val Ala Ala Glu Lys Leu Leu Thr
        50                  55                  60
Lys Phe
 65
```

```
<210> 12
<211> 66
<212> PRT
<213> Homo sapiens

<400> 12
Phe Met Glu Glu Leu Asn Thr Tyr Arg Gln Lys Gln Gly Val Val Leu
  1             5                 10                  15
Lys Tyr Gln Glu Leu Pro Asn Ser Gly Pro Pro His Asp Arg Arg Phe
                20                  25                  30
Thr Phe Gln Val Ile Ile Asp Gly Arg Glu Phe Pro Glu Gly Glu Gly
        35                  40                  45
Arg Ser Lys Lys Glu Ala Lys Asn Ala Ala Ala Lys Leu Ala Val Glu
        50                  55                  60
Ile Leu
 65
```

```
<210> 13
<211> 818
<212> PRT
<213> Caenorhabditis elegans

<400> 13
Val Asn Glu Glu Ile Lys Val Gln Phe Ala Lys Asn Phe Val Tyr Asp
  1             5                 10                  15
Asn Asn Ser Ile Leu Arg Val Pro Glu Ser Phe His Asp Pro Asn Arg
```

```
                  20                          25                          30
Phe Glu Gln Ser Leu Glu Val Ala Pro Arg Ile Glu Ala Trp Phe Gly
             35                          40                          45
Ile Tyr Ile Gly Ile Lys Glu Leu Phe Asp Gly Glu Pro Val Leu Asn
     50                          55                          60
Phe Ala Ile Val Asp Lys Leu Phe Tyr Asn Ala Pro Lys Met Ser Leu
65                          70                          75                          80
Leu Asp Tyr Leu Leu Leu Ile Val Asp Pro Gln Ser Cys Asn Asp Asp
                  85                          90                          95
Val Arg Lys Asp Leu Lys Thr Lys Leu Met Ala Gly Lys Met Thr Ile
             100                         105                         110
Arg Gln Ala Ala Arg Pro Arg Ile Arg Gln Leu Leu Glu Asn Leu Lys
             115                         120                         125
Leu Lys Cys Ala Glu Val Trp Asp Asn Glu Met Ser Arg Leu Thr Glu
     130                         135                         140
Arg His Leu Thr Phe Leu Asp Leu Cys Glu Glu Asn Ser Leu Val Tyr
145                         150                         155                         160
Lys Val Thr Gly Lys Ser Asp Arg Gly Arg Asn Ala Lys Lys Tyr Asp
                  165                         170                         175
Thr Thr Leu Phe Lys Ile Tyr Glu Glu Asn Lys Lys Phe Ile Glu Phe
             180                         185                         190
Pro His Leu Pro Leu Val Lys Val Lys Ser Gly Ala Lys Glu Tyr Ala
             195                         200                         205
Val Pro Met Glu His Leu Glu Val His Glu Lys Pro Gln Arg Tyr Lys
     210                         215                         220
Asn Arg Ile Asp Leu Val Met Gln Asp Lys Phe Leu Lys Arg Ala Thr
225                         230                         235                         240
Arg Lys Pro His Asp Tyr Lys Glu Asn Thr Leu Lys Met Leu Lys Glu
             245                         250                         255
Leu Asp Phe Ser Ser Glu Glu Leu Asn Phe Val Glu Arg Phe Gly Leu
             260                         265                         270
Cys Ser Lys Leu Gln Met Ile Glu Cys Pro Gly Lys Val Leu Lys Glu
             275                         280                         285
Pro Met Leu Val Asn Ser Val Asn Glu Gln Ile Lys Met Thr Pro Val
     290                         295                         300
Ile Arg Gly Phe Gln Glu Lys Gln Leu Asn Val Val Pro Glu Lys Glu
305                         310                         315                         320
Leu Cys Cys Ala Val Phe Val Val Asn Glu Thr Ala Gly Asn Pro Cys
             325                         330                         335
Leu Glu Glu Asn Asp Val Val Lys Phe Tyr Thr Glu Leu Ile Gly Gly
             340                         345                         350
Cys Lys Phe Arg Gly Ile Arg Ile Gly Ala Asn Glu Asn Arg Gly Ala
             355                         360                         365
Gln Ser Ile Met Tyr Asp Ala Thr Lys Asn Glu Tyr Ala Phe Tyr Lys
     370                         375                         380
Asn Cys Thr Leu Asn Thr Gly Ile Gly Arg Phe Glu Ile Ala Ala Thr
385                         390                         395                         400
Glu Ala Lys Asn Met Phe Glu Arg Leu Pro Asp Lys Glu Gln Lys Val
             405                         410                         415
Leu Met Phe Ile Ile Ile Ser Lys Arg Gln Leu Asn Ala Tyr Gly Phe
             420                         425                         430
Val Lys His Tyr Cys Asp His Thr Ile Gly Val Ala Asn Gln His Ile
             435                         440                         445
Thr Ser Glu Thr Val Thr Lys Ala Leu Ala Ser Leu Arg His Glu Lys
     450                         455                         460
Gly Ser Lys Arg Ile Phe Tyr Gln Ile Ala Leu Lys Ile Asn Ala Lys
465                         470                         475                         480
Leu Gly Gly Ile Asn Gln Glu Leu Asp Trp Ser Glu Ile Ala Glu Ile
             485                         490                         495
Ser Pro Glu Glu Lys Glu Arg Arg Lys Thr Met Pro Leu Thr Met Tyr
             500                         505                         510
Val Gly Ile Asp Val Thr His Pro Thr Ser Tyr Ser Gly Ile Asp Tyr
     515                         520                         525
Ser Ile Ala Ala Val Val Ala Ser Ile Asn Pro Gly Gly Thr Ile Tyr
     530                         535                         540
Arg Asn Met Ile Val Thr Gln Glu Glu Cys Arg Pro Gly Glu Arg Ala
```

```
545                     550                     555                     560
Val Ala His Gly Arg Glu Arg Thr Asp Ile Leu Glu Ala Lys Phe Val
            565                     570                     575
Lys Leu Leu Arg Glu Phe Ala Glu Asn Asp Asn Arg Ala Pro Ala
            580                     585                     590
His Ile Val Val Tyr Arg Asp Gly Val Ser Asp Ser Glu Met Leu Arg
            595                     600                     605
Val Ser His Asp Glu Leu Arg Ser Leu Lys Ser Glu Val Lys Gln Phe
        610                     615                     620
Met Ser Glu Arg Asp Gly Glu Asp Pro Glu Pro Lys Tyr Thr Phe Ile
625                     630                     635                     640
Val Ile Gln Lys Arg His Asn Thr Arg Leu Leu Arg Arg Met Glu Lys
                645                     650                     655
Asp Lys Pro Val Val Asn Lys Asp Leu Thr Pro Ala Glu Thr Asp Val
            660                     665                     670
Ala Val Ala Ala Val Lys Gln Trp Glu Glu Asp Met Lys Glu Ser Lys
            675                     680                     685
Glu Thr Gly Ile Val Asn Pro Ser Ser Gly Thr Thr Val Asp Lys Leu
        690                     695                     700
Ile Val Ser Lys Tyr Lys Phe Asp Phe Phe Leu Ala Ser His His Gly
705                     710                     715                     720
Val Leu Gly Thr Ser Arg Pro Gly His Tyr Thr Val Met Tyr Asp Asp
                725                     730                     735
Lys Gly Met Ser Gln Asp Glu Val Tyr Lys Met Thr Tyr Gly Leu Ala
            740                     745                     750
Phe Leu Ser Ala Arg Cys Arg Lys Pro Ile Ser Leu Pro Val Pro Val
            755                     760                     765
His Tyr Ala His Leu Ser Cys Glu Lys Ala Lys Glu Leu Tyr Arg Thr
            770                     775                     780
Tyr Lys Glu His Tyr Ile Gly Asp Tyr Ala Gln Pro Arg Thr Arg His
785                     790                     795                     800
Glu Met Glu His Phe Leu Gln Thr Asn Val Lys Tyr Pro Gly Met Ser
                805                     810                     815
Phe Ala
```

<210> 14
<211> 63
<212> PRT
<213> Caenorhabditis elegans

```
<400> 14
Trp Val Gly Lys Leu Gln Phe Lys Ser Gln Lys Ser Lys Leu Gln Ala
 1               5                   10                  15
Asp Ile Tyr Glu Asp Ser Lys Asn Glu Arg Thr Glu Phe Thr Leu Val
            20                  25                  30
Ile Cys Thr Met Cys Asn Gln Lys Thr Arg Gly Ile Thr Ser Lys Gln
            35                  40                  45
Lys Asp Ala Lys Asn Leu Ala Ala Trp Leu Met Trp Lys Ala Leu
        50                  55                  60
```